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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/783,527

02/15/2001

Toshiki Tanaka

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4937

21171

7590

01/25/2006

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EXAMINER

PAYNE, DAVID C

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/783,527	<b>Applicant(s)</b> TANAKA ET AL.	
	<b>Examiner</b> David C. Payne	<b>Art Unit</b> 2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 21 October 2005 have been fully considered but they are not persuasive.
2. Once negative dispersion is introduced in the fiber (as in Suzuki col. 6 lines 45-50, which has a wavelength dispersion value of -60 ps/km/nm to cancel a positive accumulated wavelength dispersion of 36 ps/nm for a 180-km long portion of the optical fiber) offsetting the positive accumulated dispersion, the act of adding yet another third length of fiber where the dispersion is less than the absolute value of dispersion per unit length is obvious to one of ordinary skill. By the same logic, one could patent adding a fourth, fifth, etc. length of fiber so long as it does not change the per unit dispersion. Simply adding a zero dispersion unit of fiber, which is common at certain wavelengths, would meet the requirement.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura US 5,793,917 (Yoshimura) in view of Suzuki et al. US 5,629,795 (Suzuki) and Bhagavatula et al. US 5,887,105 A (Bhagavatula).

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Regarding claims 1, 11, 20, 29, 30, 46 and 47

Yoshimura disclosed a dispersion compensation system for use in undersea optical lines for correcting dispersion and where the dispersion coefficient of the dispersion compensating fiber is opposite in sign to that of the existing cable (e.g., col./line: 2/1-10). Yoshimura does not disclose that the third section (or inserted section) has an absolute value of dispersion per unit of length smaller than the absolute value of dispersion per unit of length of the first and the second fibers nor that the dispersion fiber is inserted during repair of a transmission line.

Suzuki disclosed a repeating system for correcting accumulated wavelength dispersion where the interested wavelength dispersion absolute value is less than the dispersion of the first or second span (e.g., col./line: 6/35-50). It would have been obvious to one of ordinary skill in the art at the time of invention to use a section that had such a dispersion since insertions are made at periodic points in the fiber to reduce accumulated dispersion which means that several inserts would effectively cancel the dispersion before reaching the receiver and therefore relatively smaller delay or winding for example can be used for smaller wavelengths offsets rather than using larger delays in one spot.

Bhagavatula disclosed inserting lengths of dispersion having dispersion of opposite signs to existing fiber to make a repair (e.g., col./line: 4/10-60, 6/45-50). It would have been obvious to one of ordinary skill in the art at the time of invention that a correction of dispersion in a transmission line can occur through repair given that correction must either require replace of damaged cable with new cable or an active device to counteract the effects of dispersion.

Regarding claim 42,

Furthermore, the modified invention of Yoshimura and Suzuki as taught disclosed a device for splitting light traveling through the section, a device for inserting light into the section, a dispersion compensator (Yoshimura Figure 8).

Regarding claims 2-4, 12-14, 21-23, 31-38, Yoshimura disclosed wherein, before inserting the third fiber, the first and second fibers are adjacent to each other so that light traveling through the section travels through one

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of the first and second fibers and then through the other of the first and second fibers (Yoshimura Figure 4).

Regarding claims 5-8, 15-18, 24-27, 44, 45, 48 Yoshimura wherein first and second repeaters are disposed along the transmission line, the section being defined as a portion of the transmission line between the first and second repeaters (Yoshimura Figure 4).

Regarding claims 9-10, 19, 28, 39-41, 49

The modified invention of Yoshimura and Suzuki does not disclose placement of the section at a depth of greater than or equal to 1000 meters. However, it would have been obvious to one of ordinary skill in the art at the time of invention that these cables typically lie on the ocean floor sufficiently low enough to avoid entanglement with moving vessels. Furthermore, placement of the optical cable on the ocean floor is not considered patentable over the prior art.

Regarding claim 43 the modified invention of Yoshimura and Suzuki disclosed wherein the optical fiber forming said respective section of the plurality of sections, which is not a section of said at least some sections, is non-zero dispersion shifted fiber (NZ-DSF) (Suzuki col./line: 12/50-55)

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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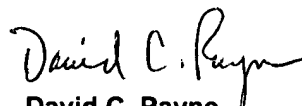
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7:00a - 4:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp

  
David C. Payne  
Primary Examiner  
AU 2638